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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/836,452	04/16/2001	Karl Reimer	23541-7002	5862

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225 SOUTH SIXTH ST
MINNEAPOLIS, MN 55402

EXAMINER

WONG, EDNA

ART UNIT	PAPER NUMBER
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1753

DATE MAILED: 06/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/836,452

Applicant(s)

REIMER, KARL

Examiner

Edna Wong

Art Unit

1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 April 2005 and 03 May 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 92-97, 101-115 and 119-135 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 92-97, 101-115 and 119-135 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>See "Other"</u> . | 6) <input checked="" type="checkbox"/> Other: <u>April 14, 2005 and May 2, 2005</u> . |

This is in response to the Amendment dated April 14, 2005 and May 3, 2005.
The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 14, 2005 has been entered.

Response to Arguments

Specification

The disclosure has objected to because of minor informalities.

The objection of the disclosure has been withdrawn in view of Applicant's amendment.

Claim Objections

Claim **119** has been objected to because of minor informalities.

The objection of claim 119 has been withdrawn in view of Applicant's

amendment.

Claim Rejections - 35 USC § 112

Claims **92-98, 101-114, 122-127, 132 and 134** have been rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The rejection of claims 92-98, 101-114, 122-127, 132 and 134 has been withdrawn in view of Applicant's amendment.

Claim Rejections - 35 USC § 102

I. Claims **92, 95-96, 98, 101, 103, 107 and 111-114** have been rejected under 35 U.S.C. 102(b) as being anticipated by **Cates et al.** (US Patent No. 5,512,123).

The rejection of claims 92, 95-96, 98, 101, 103, 107 and 111-114 under 35 U.S.C. 102(b) as being anticipated by Cates et al. has been withdrawn in view of Applicant's amendment.

II. Claims **128-130** have been rejected under 35 U.S.C. 102(b) as being anticipated by **Cates et al.** (US Patent No. 5,512,123).

The rejection of claims 128-130 under 35 U.S.C. 102(b) as being anticipated by Cates et al. has been withdrawn in view of Applicant's amendment.

Claim Rejections - 35 USC § 103

I. Claims **93-94, 97, 102 and 104-106** have been rejected under 35 U.S.C. 103(a) as being unpatentable over **Cates et al.** (US Patent No. 5,512,123) as applied to claims 92, 95-96, 98, 101, 103, 107 and 111-114 above.

The rejection of claims 93-94, 97, 102 and 104-106 under 35 U.S.C. 103(a) as being unpatentable over Cates et al. as applied to claims 92, 95-96, 98, 101, 103, 107 and 111-114 above has been withdrawn in view of Applicant's amendment.

II. Claims **108-110** have been rejected under 35 U.S.C. 103(a) as being unpatentable over **Cates et al.** (US Patent No. 5,512,123) as applied to claims 92, 95-96, 98, 101, 103, 107 and 111-114 above, and further in view of **Elliott et al.** (US Patent No. 5,669,979).

The rejection of claims 108-110 under 35 U.S.C. 103(a) as being unpatentable over Cates et al. as applied to claims 92, 95-96, 98, 101, 103, 107 and 111-114 above, and further in view of Elliott et al. has been withdrawn in view of Applicant's amendment.

III. Claims **115, 119 and 120** have been rejected under 35 U.S.C. 103(a) as being unpatentable over **Cates et al.** (US Patent No. 5,512,123).

The rejection of claims 115, 119 and 120 under 35 U.S.C. 103(a) as being unpatentable over Cates et al. has been withdrawn in view of Applicant's amendment.

IV. Claims **121-123** have been rejected under 35 U.S.C. 103(a) as being unpatentable over **Cates et al.** (US Patent No. 5,512,123).

The rejection of claims 121-123 under 35 U.S.C. 103(a) as being unpatentable over Cates et al. has been withdrawn in view of Applicant's amendment.

V. Claims **124-127** have been rejected under 35 U.S.C. 103(a) as being unpatentable over **Cates et al.** (US Patent No. 5,512,123) as applied to claims 121-123 above, and further in view of **Elliott et al.** (US Patent No. 5,669,979).

The rejection of claims 124-127 under 35 U.S.C. 103(a) as being unpatentable over Cates et al. as applied to claims 121-123 above, and further in view of Elliott et al. has been withdrawn in view of Applicant's amendment.

VI. Claims **131-135** have been rejected under 35 U.S.C. 103(a) as being unpatentable over **Cates et al.** (US Patent No. 5,512,123) as applied to claims 128-130 above, and further in view of **Elliott et al.** (US Patent No. 5,669,979).

The rejection of claims 131-135 under 35 U.S.C. 103(a) as being unpatentable over Cates et al. as applied to claims 128-130 above, and further in view of Elliott et al. has been withdrawn in view of Applicant's amendment.

Response to Amendment

Claim Objections

Claim 121 is objected to because of the following informalities:

Claim 121

line 10, the words "the surface of" (second occurrence) should be deleted.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

Claim 127 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 127

line 2, it appears that "a material" is the same as that recited in claim 121, lines 1-2. However, it is unclear if it is. If it is, then it is suggested that the word "a" be amended to the word -- the --.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

I. Claims 92-97, 101-107 and 113-114 are rejected under 35 U.S.C. 103(a) as

being unpatentable over **Drzal et al.** (US Patent No. 6,565,927 B1).

Drzal teaches a method of preparing a substrate **12** (= a polymer, polymer composite or metal) for adherence of a material (= adhesive bonding or painting) thereto, the substrate having a surface **12A** (col. 4, lines 6-8; and col. 7, lines 17-19), the method comprising the steps of:

(a) generating an active zone **B** using an electromagnetic radiation source **24** (= UV lamp) (col. 7, lines 12-33; and Fig. 1); and

(b) exposing the surface of said substrate to the active zone, whereby the surface of the substrate is chemically modified (= the process creates beneficial surface chemistries for adhesive bonding or painting) [col. 4, lines 8-10] for adhering the material onto said substrate by exposure to the active zone, wherein the substrate is exposed to electromagnetic radiation in the active zone including ultraviolet radiation having a wavelength in the range of about 150 nanometers to 400 nanometers (= 180nm - 500nm) [col. 6, lines 36-38] and wherein the step of exposing occurs at substantially ambient pressure (= ambient conditions) [col. 6, lines 48-50].

The substrate includes a polymer (col. 4, lines 6-8).

The substrate includes a composite used in aircraft and space vehicle fabrication (= aerospace applications) [col. 20, lines 52-55].

The substrate includes a component used in automobile manufacturing (= auto wheel) [col. 20, lines 52-55].

The step of exposing includes conveying the substrate through said active zone

using a conveyor system **10** (col. 4, lines 53-58) whereby the substrate is exposed to the active zone **B** for a residence time (= exposure time) [col. 11, lines 12-29].

The conveyor system further includes a conveyor belt **16** for carrying the substrate **12** (col. 7, lines 14-16).

The method further comprises the step of evacuating the active zone in a location adjacent to the conveyor system (= the hood **26** is provided with a blower **44** which removes volatilized products from the hood through line **46**) [col. 7, lines 31-33; and Fig. 1].

The method further comprises the step of directing a gas (= air, nitrogen or ozone) over the surface of the substrate exposed to the active zone (col. 4, lines 30-33; and col. 6, lines 48-50).

The gas to be injected over the surface of the substrate exposed to the active zone includes a gas selected from the group consisting of carbon tetrachloride, chloroform, halogen functionality compounds, oxygen functionality compounds, water vapor, oxygen, air, silanes, amine functionality compounds, ammonia and nitrogen (= air, nitrogen or ozone) [col. 4, lines 30-33; and col. 6, lines 48-50].

The step of exposing includes exposing the surface of the substrate to infra-red radiation generated by an infra-red radiation source, wherein the surface of the substrate is heated by exposure to the infra-red radiation (= when longer wavelengths in the infrared region are not filtered out) [col. 6, lines 58-62].

Drzal does not teach wherein the ultraviolet radiation is continuous ultraviolet radiation.

However, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method of Drzal with wherein the ultraviolet radiation is continuous ultraviolet radiation because Drzal teaches that the light can be pulsed or continuous (abstract; and col. 6, lines 42-45). Although Drzal teaches that that the surface of the substrate is preferably exposed to a UV flashlamp (col. 6, lines 36-38), the disclosure of reference must be considered for what it fairly teaches one of ordinary skill in the art, pertinence of non-preferred disclosure must be reviewed in such light. *In re Meinhardt* 157 USPQ 270; and MPEP § 2123.

As to wherein said substrate includes a sole of a shoe; and wherein said substrate includes a well-plate, wherein said well-plate is used for biochemical analysis, Drzal teaches that the substrate surface to be treated is preferably constructed of a polymer, polymer composite or a metal (col. 6, lines 38-40). A sole of a shoe and a well-plate would have been suitable substrates to treat by the method disclosed by Drzal because their surfaces are conventionally constructed of a polymer, polymer composite or a metal.

As to wherein the intensity of said electromagnetic radiation at the surface of the substrate ranges from about 2.0 joules per square centimeter to about 5,000 joules per square centimeter; and wherein the intensity of said electromagnetic radiation at the surface of the substrate ranges from about 10 joules per square centimeter to about 1000 joules per square centimeter, the intensity of the electromagnetic radiation is a result-effective variable and one skilled in the art has the skill to calculate the intensity that would determine the success of the desired reaction to occur, absent evidence to the contrary. MPEP § 2141.03 and § 2144.05(b).

Furthermore, it appears that one having ordinary skill in the art would have had the skill to adjust the intensity of the electromagnetic radiation source to radiate a metal substrate vs. an organic substrate. It does not appear that the same intensity would have been applied to both types of materials.

As to wherein the residence time is in a range of from about 0.1 seconds to about 10 seconds; and wherein the residence time is in a range of from about 0.2 seconds to about 5 seconds, Drzal teaches that process times are regulated by the distance of the UV lamp or flashlamp from the substrate surface, ambient temperature or condition and the extent of surface modification need (col. 6, lines 42-45). Thus, the residence time is a result-effective variable and one skilled in the art has the skill to calculate the residence time that would determine the success of the desired reaction to occur, absent evidence to the contrary. MPEP § 2141.03 and § 2144.05(b).

II. Claims **108-112** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Drzal et al.** (US Patent No. 6,565,927 B1) as applied to claims 92-97, 101-107 and 113-114 above, and further in view of **Cates et al.** (US Patent No. 5,512,123) and **Elliott et al.** (US Patent No. 5,669,979).

Drzal et al. is as applied for the reasons as discussed above and incorporated herein.

Drzal does not teach wherein the method further comprises the step of exposing the substrate to a discharge from an electro-ionization device; wherein the electro-ionization device is located in the active zone; and wherein the method further comprises the step of circulating a gas proximate said electro-ionization device so that said gas flows over the electro-ionization device onto the substrate.

However, Cates teaches that an ionized gas stream, which may include gaseous ions such as N_2^+ , N^+ , O_2^+ , O^+ and O^- can be directed to bathe the target area on the surface with an ionized gas stream received from an ionized gas generator to further enhance the surface bondability. The ionized gas generator manufactures the ionized gas stream from dry gas by a gas supply which may include dry air, ozone, chlorine, nitrogen, carbon dioxide or ammonia (col. 6, lines 32-44).

Elliott teaches that an electro-ionization gas generator manufactures an ionized gas stream from dry gas by a gas supply (= input gas) which may include Cl_2 , O_2 , O_3 ,

and F₂ (col. 5, lines 50-59; col. 12, lines 47-65; and Fig. 6).

The use of the electro-ionization gas generator disclosed by Elliott as the ionized gas generator disclosed by Cates would have been a selection of old parts to operate in new environments in order to achieve the same results. *In re Ross* 105 USPQ 237. And the substitution of known equivalent structures was held to have been obvious. *In re Ruff* 118 USPQ 343 (CCPA 1958).

Thus, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method of Drzal with wherein the method further comprises the step of exposing the substrate to a discharge from an electro-ionization device; wherein the electro-ionization device is located in the active zone; and wherein the method further comprises the step of circulating a gas proximate said electro-ionization device so that said gas flows over the electro-ionization device onto the substrate because this would have enhanced the surface bondability as taught by Cates (col. 6, lines 32-44) and Elliott (col. 5, lines 50-59; col. 12, lines 47-65; and Fig. 6).

As to wherein the step of exposing includes exposing the surface of the substrate to the infra-red radiation prior to exposing the surface of the substrate to the ultraviolet radiation, the selection of any order of performing process steps is prima facie obvious in the absence of new or unexpected results. See *In re Burhans*, 154 F.2d 690, 69

USPQ 330 (CCPA 1946)

III. Claims **115, 119 and 120** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Drzal et al.** (US Patent No. 6,565,927 B1).

Drzal et al. is as applied for the reasons as discussed above and incorporated herein.

Drzal also teaches wherein the material is selected from the group consisting of a glue, a coating, an adhesive, a paint and a resinous compound (= adhesive bonding or painting) [col. 4, lines 6-8].

Drzal does not teach wherein the intensity of said electromagnetic radiation at the surface of the substrate ranges from about 0.1 joules per square centimeter to about 50,000 joules per square centimeter, the intensity of the electromagnetic radiation is a result-effective variable and one skilled in the art has the skill to calculate the intensity that would determine the success of the desired reaction to occur, absent evidence to the contrary. MPEP § 2141.03 and § 2144.05(b).

Furthermore, it appears that one having ordinary skill in the art would have had the skill to adjust the intensity of the electromagnetic radiation source to radiate a metal substrate vs. an organic substrate. It does not appear that the same intensity would have been applied to both types of materials.

IV. Claims **121-123** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Drzal et al.** (US Patent No. 6,565,927 B1).

Drzal et al. is as applied for the reasons as discussed above and incorporated herein.

V. Claims **124-127** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Drzal et al.** (US Patent No. 6,565,927 B1) as applied to claims 121-123 above, and further in view of **Cates et al.** (US Patent No. 5,512,123) and **Elliott et al.** (US Patent No. 5,669,979).

Drzal et al., Cates et al. and Elliott et al. are as applied for the reasons as discussed above and incorporated herein.

VI. Claims **128-132 and 134-135** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Drzal et al.** (US Patent No. 6,565,927 B1).

Drzal et al. is as applied for the reasons as discussed above and incorporated herein.

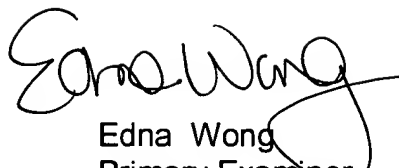
VII. Claim **133** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Drzal et al.** (US Patent No. 6,565,927 B1) as applied to claims 121-123 above, and further in view of **Cates et al.** (US Patent No. 5,512,123) and **Elliott et al.** (US Patent No. 5,669,979).

Drzal et al., Cates et al. and Elliott et al. are as applied for the reasons as discussed above and incorporated herein.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edna Wong whose telephone number is (571) 272-1349. The examiner can normally be reached on Mon-Fri 7:30 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Edna Wong
Primary Examiner
Art Unit 1753

EW
May 27, 2005